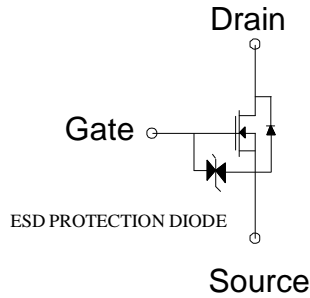


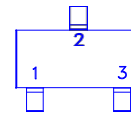
## N-Channel High Density Trench MOSFET

### PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
60V	2Ω	600mA



SOT-23



- 1. GATE
- 3. SOURCE

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		$V_{DS}$	60	V
Gate-Source Voltage		$V_{GS}$	±20	V
Continuous Drain Current	$T_C = 25\text{ °C}$	$I_D$	600	mA
	$T_C = 100\text{ °C}$		380	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	1	A
Power Dissipation	$T_C = 25\text{ °C}$	$P_D$	0.35	W
	$T_C = 100\text{ °C}$		0.14	
Operating Junction & Storage Temperature Range		$T_j, T_{stg}$	-40 to 150	°C

### THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		350	°C / W

<sup>1</sup>Pulse width limited by maximum junction temperature.

### ELECTRICAL CHARACTERISTICS ( $T_J = 25\text{ °C}$ , Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	2.5	V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 16V$			±30	μA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 48V, V_{GS} = 0V$			1	μA
		$V_{DS} = 40V, V_{GS} = 0V, T_J = 125\text{ °C}$			30	
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = 10V, V_{GS} = 10V$	1			A
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = 3.5V, I_D = 10mA$		2.1	5	Ω
		$V_{GS} = 4.5V, I_D = 100mA$		1.7	3	
		$V_{GS} = 10V, I_D = 200mA$		1.6	2	
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 20V, I_D = 200mA$		3		S

DYNAMIC						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		42		pF
Output Capacitance	$C_{oss}$			7		
Reverse Transfer Capacitance	$C_{rss}$			3		
Total Gate Charge <sup>2</sup>	$Q_g$	$V_{DS} = 30V_{(BR)DSS}, V_{GS} = 10V,$ $I_D = 200mA$		1.8		nC
Gate-Source Charge <sup>2</sup>	$Q_{gs}$			0.9		
Gate-Drain Charge <sup>2</sup>	$Q_{gd}$			0.2		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS( $T_J = 25^\circ C$ )						
Continuous Current	$I_S$	$I_F = 200mA, V_{GS} = 0V$			300	mA
Forward Voltage <sup>1</sup>	$V_{SD}$				1.2	V

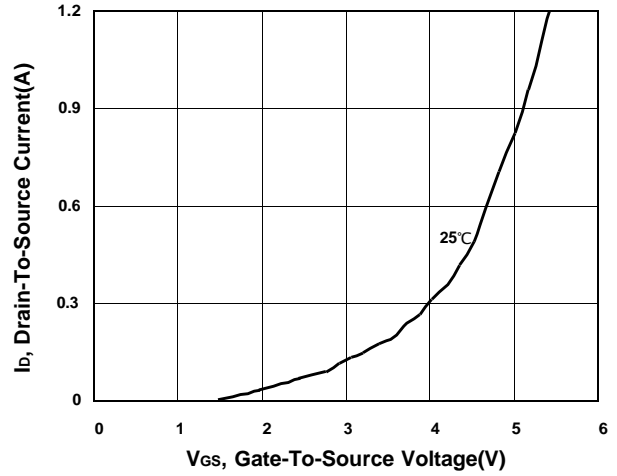
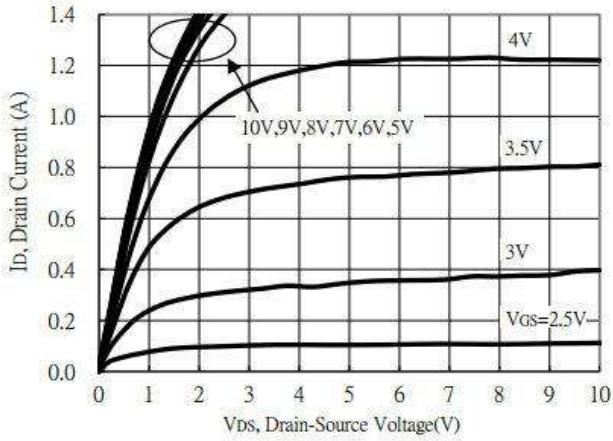
<sup>1</sup>Pulse test : Pulse Width  $\leq 300 \mu sec$ , Duty Cycle  $\leq 2\%$ .

<sup>2</sup>Independent of operating temperature.

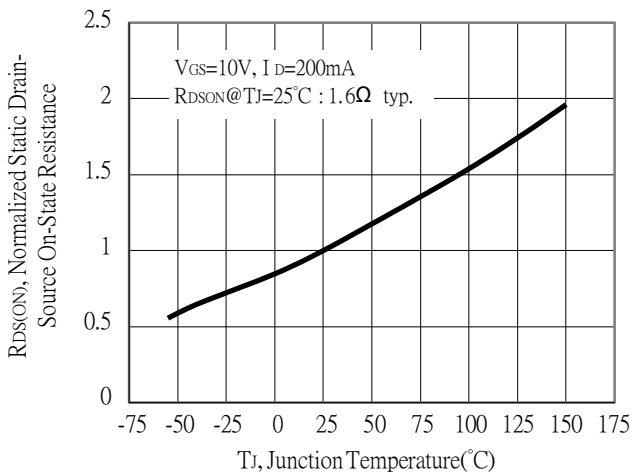
<sup>3</sup>Pulse width limited by maximum junction temperature.

**REMARK: ESD Protected Gate, 2KV HBM**

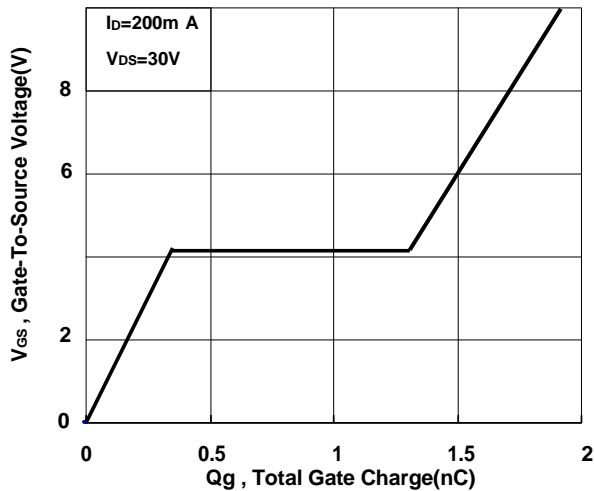
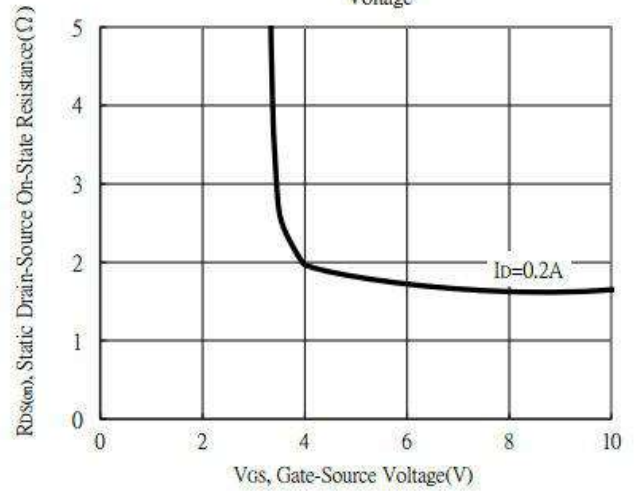
Typical Output Characteristics



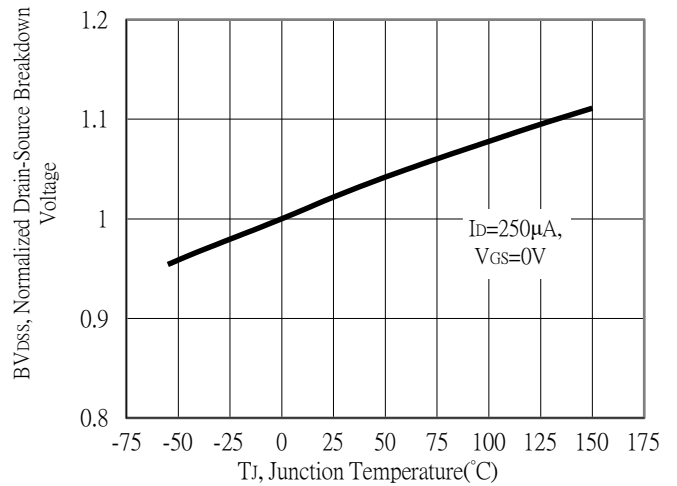
Drain-Source On-State Resistance vs Junction Temperature



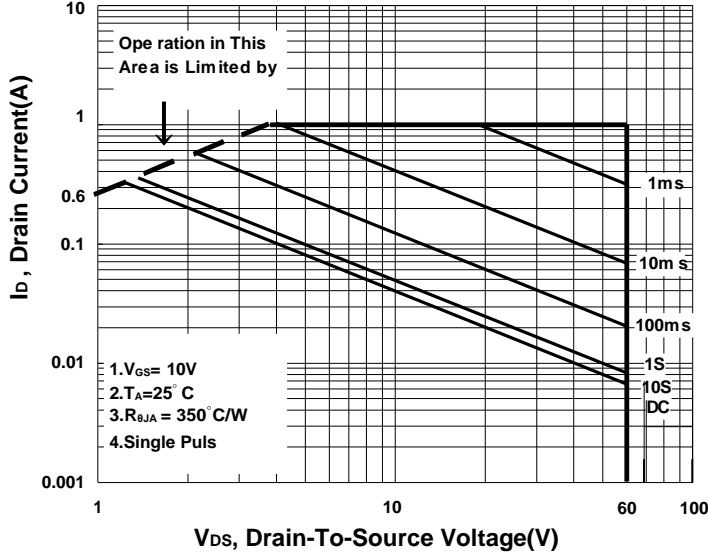
Static Drain-Source On-State Resistance vs Gate-Source Voltage



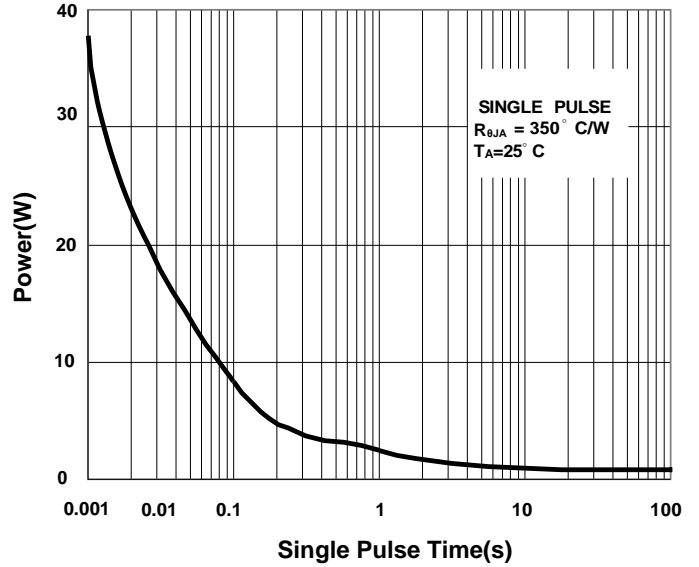
Brekdown Voltage vs Ambient Temperature



**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curves**

